

***National Spent Nuclear Fuel Program
Strategy Meeting Agenda
April 22-23, 2003
Gaithersburg, MD***

Tuesday, April 22

8:00	Introductions	Mark Arenaz
8:05	Welcome	
8:10	Action Items – October 2002 Strategy Meeting	Phil Wheatley*
8:20	National Spent Nuclear Fuel Program Direction	Mark Arenaz*
	- NSNFP Database Status	
	- EM/RW Roles for NSNFP	
8:40	Repository Program Update	Paul Harrington*
	- Status of License Application	
9:30	NRC Technical Exchange Meeting on DOE SNF	Joe Price*
9:50	Break	
10:15	CPT/Subproject Team Reports	Christine Gelles*
	11:40 Aluminum Based SNF	Howard Eckert*
	11:55 Sodium Bonded SNF	Howard Eckert*
	12:00 Lunch	
	1:40 Evaluation of alternate Canisters	Dinesh Gupta*
	1:55 Evaluation of Reliance on the Standard Canister	Mark Arenaz*
	2:40 Hanford MCO	Mark French*
	2:50 TRU	Mark French*
	3:00 Unirradiated Fuel	Billy Chambers*
2:30	Site SNF Strategies	
	Focus discussion on plans to Accelerate Cleanup and identify needs to implement	
	2:30 Hanford	Mark French*
	3:10 SRS	Billy Chambers*
	3:20 Break	
	3:35 INEEL/INTEC	Dick Blaney*
	3:55 ANL-W – MEDEC/EMT	Bob Pahl*
4:30	Quality Assurance	Bob Blyth*
4:45	WASRD Update	Marcus Popa
	- Anticipated near-term RW documents reviews	
5:00	Adjourn	

Wednesday, April 23

8:00	Opening Remarks	Mark Arenaz
8:10	EM Status and Issues	Patty Bubar
8:45	EM HLW Corporate Project Team Status	Ken Pica*
9:00	DOE / Contractor Strategy Session Breakout to Identify Issues for Discussion	
9:45	Break	
10:00	Facilitated Discussion of Issues with All Participants	Lori Braase
11:30	Lunch	
1:00	Continue Discussion of Issues	
2:30	Planning for DOE SNF Data Needs for Disposal	Guy Martin*
2:55	Meeting Summary/Actions	Mark Arenaz
3:00	Adjourn	

**Copies of the presentations will be available electronically on the NSNFP Web page after May 15, 2003,
at <http://nsnfp.inel.gov/program>.*

ATTENDEES

Abrefah, John	French, Mark	Meredith, Dave
Arenaz, Mark	Gelles, Christine	McCormack, Roger
Armour, Don A.	Griffith, Andy	Nalezny, Charles
Blaney, Dick	Griffith, Tom	Pahl, Bob
Bloomer, Tamara	Gupta, Dinesh	Popa, Markus
Blyth, Bob	Harrington, Paul	Price, Joe
Braase, Lori	Heiser, Mike	Pruitt, Joe
Branagan, Ed	Hill, Tom	Richardson, Dennis
Chambers, Billy	Holcomb, Don	Ross, Steven L.
Cohen, Eric	Hurt, Bill	Scorah, John
Daniels, Raphael S.	Iyer, Natraj	Senderling, Mark
DeMonia, Brian	Koutsandreas, Denis	Sprague, Richard
Duguid, Jim	Lesica, Susan	Swift, Bill
Eckert, Howard	Linhart, Jim	Twarowska, Stasia
Epperson, Dan	Loo, Henry H.	Vlahakis, John
Fillmore, Denny	Loos, Richard L.	Weber, Carl
Featherman, David	Martin, Guy	Wheatley, Phil

ACTION ITEMS

#	Action Item	Designee	Status
1	E-mail presentations to Lori Braase (bse@inel.gov) for inclusion on the NSNFP web page.	Presenters	Complete

PATH FORWARD

Due to the uncertainty of the path forward on management of SNF and EM reorganization the next Spent Nuclear Fuel Strategy meeting was not scheduled. Notifications will be sent if a Fall 2003 meeting will be held.

National Spent Nuclear Fuel Strategy Meeting

**April 22-23, 2003
Gaithersburg, MD**

The information below represents discussion highlights or questions raised during the presentations. Copies of the presentations will be available electronically on the NSNFP Web page after May 15, 2003, at <http://nsnfp.inel.gov/program>.

TUESDAY APRIL 22, 2003

Welcome / National Spent Nuclear Fuel Program (NSNFP) Direction

Mark Arenaz

Mark Arenaz opened the NSNFP Strategy Meeting and discussed the status of the program within the Department Of Energy (DOE) Environmental Management (EM) oversight. He highlighted recent accomplishments by the NSNFP especially the recent technical exchange that RW and EM had with the NRC on the proposed SNF licensing strategy. It is likely that DOE-EM will transfer the NSNFP Program to the Office of Radioactive Waste Management (OCRWM) in FY 05. The NSNFP will keep the sites informed as information becomes available.

October 2002 Strategy Meeting Action Items Review

Phil Wheatley

Phil Wheatley reviewed the status of the action items from the last NSNFP Strategy Meeting held in Las Vegas, Nevada in October 2002.

Repository Program Update

Paul Harrington

Paul Harrington provided an update on OCRWM realignment and Repository project activities. Key points from the presentation were:

- Bob Card has asked for a more flexibility in the Yucca Mountain Project (YMP) design and approach.
- The science work is on a critical path, but the engineering work is not.
- BSC is rethinking mechanical handling and layouts for facilities. They are looking to subcontract the mechanical handling work, which has the potential to change the BSC design. There have been changes to the layouts and this is leaving less time for consolidation of input for the License Application (LA).
- Expected funding level was not received. The lower funding level will require some cutbacks.
- To increase design flexibility, we are looking for ways to accept higher rates of waste. Basis was 3000 MTHM per year. We want to increase to as much as 6000. This will requires a

certain funding profile and will affect all aspects of design. We are also looking at ways to increase emplacement rates as well.

- Being able to receive and emplace by 2010 continues to be a program goal.
- There is an issue with non-availability of rail in 2010. Heavy haul may have to be used for the short term is okay, but not acceptable for long-term. This impacts throughput of facility. Adequate power is also an issue. It will take several years to increase power to Yucca Mountain. This is a significant construction activity and critical path item and the permits take time.
- There is one Waste Package (WP) design with varying dimensions and different basket structures to accept different waste forms. Effectively one design. LA will include information addressing all ten variations as well as more information on four of the WP that represent numerically the bulk of waste received. These are also the heaviest WPs.
- The waste forms will be everything we have been analyzing to date; all DOE SNF in standard canisters, HLW (glass), commercial, Pu as MOX, and Navy. Anything other waste form will be included in a license amendment at some future date. However, inclusion of other material will not be precluded. Statements will be made to provide technical basis near term to allow EM to continue with their path forward and to ensure RW is able to accept Alternative Waste forms in the future.
- The remediation facility has a pool to deal with a problem WP, fuel, or transportation cask and will be used as cooling and shielding to repackage. The Remediation facility is planned for second phase of construction. But it will probably be part of the first phase to ensure we have the capability. The surface facility has capability to remove impact limiters and deal with empty WPs prior to loading.
- Initially, the repository will have eight emplacement drifts, but three will be done for initial emplacement. HVAC systems will be in place. Eventually, there will be a new second North portal for construction. But we will use current North portal for emplacement for the first initial WP transfers and south portal for construction.

NRC Technical Exchange Meeting on DOE SNF

Joe Price

In summary, we had a successful meeting with the NRC. We have been trying to meet with them for a couple of years. Based on their questions, there is a need to have continuing discussions and follow-on technical exchange with the NRC staff around September 2003.

- There was some discussion on release rates, which are not well understood on the 250 types of DOE-SNF. We are back to the reality of best available information. We reserved release rates for a later discussion. We did discuss our approach of using a surrogate fuel to bound the analysis. We did tell them that we have some initial release rate information.
- The significant thing from the NRC viewpoint was the standard canister, because it moves us out of Category 2 to allow us to do a beyond design basis analysis. The standard canister's role in the YMP Surface Facility was to prevent releases. Use of the standard canister effectively reduces DOE-SNF from 250 to 16 DOE-SNF types. Criticality analysis for post closure will use the same basis.

- There may be an issue with Part 63; it applies to a risk informed approach. We are trying to take a deterministic approach. Some discussions with the NRC indicate they may want a probabilistic determination. This will be hard to do. This applies to WP and cask as well. They are concerned about not meeting Part 63 requirements.
- We received the source term report recently. We have not set the date for the next meeting, but it should be in August or September. Meeting on criticality has to occur first.

CPT/Subproject Team Reports

Christine Gelles

Christine Gelles provided an overview of the Corporate SNF Project Team (CPT). A re-evaluation of the Corporate Project Team Scope and Schedule may lead to a revised CD-1.

- In addition to their current scope, the CPT has been asked to look at a “no alternative” scenario for on-site storage. However, this does not meet the requirement to support DOE Mission activities. This is the “Optimized EM Storage Case”.
- It was determined it was not necessary to treat aluminum fuel to emplace it in repository, but it would have to be put into a standard canister. The planning assumption is we will not pursue a LA amendment until after 2010 (after YMP is operational). This will impact the acceptance of alternative waste forms that are not in the LA.
- The CPT will build cost and time curves on various options and schedules. The CPT will be looking for general agreement on the scenarios for deliverable in the next two weeks to management.
- The Undersecretary wants to make the LA performance basis encompass other types of glass. More analysis is needed to support this approach.
- For the no sodium SNF Treatment scenario - we don’t know for certain that all of this fuel is RCRA. We may have been too conservative. Significant cost savings can be achieved if the by-product rule can be achieved.
- Calcine could be directly disposed of under this scenario.
- The shipping schedule is “moving” based on possible changes in direction. May be 1000 less WPs for YMP based on the decision not to melt and dilute. This could also mean more standard canisters will be needed.
- There are 3 waste forms that are different and will require more analysis to determine repository acceptance. We have done a lot of non-qualified data analysis to determine if further analysis was warranted. We will have to do qualified analysis to include them in the LA. The 3 waste forms are:
 - “Sloppy glass” contains some borosilicate glass but not to the previous rigorous standards. Has broader requirements than those placed on it today.
 - Calcine
 - Isotopic glass for Pu alternative.

- We are analyzing some of the sites utilization of packaging. We did not appreciate that one of the reasons for the glass was for criticality control in the WP and the interdependency of the HLW glass in the repository performance six months ago.
- Part of EM's focus is to improve cleanup contracts. Changes to waste forms, transportation rates, etc. will increase costs of contracting. We need to develop a base case that is under EM's control that will give us a basis for contracting.
- We are progressing to the point of having a recommended strategy. We do have a major disconnect with the FY-04 and FY-05 budget planning. As we represent and populate these scenarios, we will identify the disconnects and impacts to the out-year budget requirements and contract scope. FY-04 will have to go forward as planned. We would have to identify a budget amendment to champion any necessary changes.

SUBPROJECT TEAM REPORTS

Treatment of Aluminum Based SNF

Howard Eckert

The team determined treatment of aluminum based SNF was not necessary for the LA. Even though the Melt and Dilute process does have some benefits (see slides), they were not sufficient to lead to the decision to process aluminum using Melt and Dilute. The team recommends using the standard canister and implementing institutional measures to protect Al-SNF.

- The reports are in draft form and the CPT has them for review. However there has been a change in direction that has put a hold on publication to determine the impact of the new management direction (new scenario). Ultimately, they will all be formalized. It was recommended that all the reports be published. They will be helpful as starting points for further analysis.

Treatment of Sodium Bonded SNF

Howard Eckert

MEDEC is the least expensive of alternatives, but we need to do a technical evaluation to determine feasibility and then to evaluate regulatory issues with direct disposal.

Evaluation of Alternate Canisters

Dinesh Gupta

The team did not complete their evaluation. However, they concluded there is nothing obviously better than the current baseline (standard canister). The 2004 LA will not accommodate needed analyses for using alternate canisters. In addition, a License Amendment to accommodate an alternate canister could cost \$10M.

It was recommended to complete the analysis and have it available for future changes. CERMET casks have advantages in recycling.

Evaluation of Reliance on the Standard Canister

Mark Arenaz

The evaluation results recommended maintaining current baseline (standard canister).

Issues from the evaluation:

- Starting a bare fuel scenario means 7 years delay in shipping DOE SNF to the repository (license amendment would be needed) with longer storage at the sites. This cost must be factored into the interim storage scenario. More handling costs for repository from individual fuel handling unit operations. Bare fuel will probably have to be shipped by truck, increasing transportation costs.
- Even though the NSNFP believes most of the DOE-SNF can be accepted bare into the repository, it does not have the pedigree documentation required and a NDE system would have to be developed. Standard canister resolves this issue. However, some specific fuel may be handled bare, such as FSV, which is Geographically dependent. It does not make sense to build a canister packaging facility at FSV.
- West Valley fuel does not meet the definition of bare fuel, but it is NRC shippable. We need to put these two casks on the RW acceptance schedule. We should be able to ship this to RW without further EM investment, but because of its commercial origin, DOE was directed not to put this fuel on the schedule. As long as RW has some quality documentation to be able to analyze it for handling and storage in the repository, it may be able to be handled as commercial origin SNF. Even though it is non-standard according to the WASRD.

MCO Transportability and Survivability

Mark French

This is a Hanford specific issue. We will complete the MCO drop analysis and tests for the surface facility. We will also support interactions with the NRC on MCO transportation issues. MCO shipments will be initiated by October 2017.

It was recommended that this team should analyze for the shortest transportation option available, based on the fact that the MCOs should be ready to ship and in storage at Hanford. We should continue with the transportation analyses for the MCOs. We should wait until the surface facility design is settled this June. Then we can determine what drop tests are necessary.

Remote Handled Transuranic Waste

Mark French

It is more cost effective to send TRU to WIPP rather than YMP. The acceptance of non-defense related RH-TRU at WIPP is something they are considering. Hanford has 1500 m³ of RH-TRU volume.

Unirradiated Nuclear Fuels

Billy Chambers

A funded plan is not available. There are many possibilities for recovery. This CPT is working with Nuclear Materials Project Team (Matt McCormick). Some of the low burnup SNF at SRS

is hard to differentiate from the unirradiated nuclear fuels. The SNF is slightly contaminated from storage in wet pool, but nevertheless, it can be contact handled.

SITE SNF STRATEGIES

Hanford Spent Nuclear Fuel Project Status

Mark French

See slides

- No funding provider for FFTF fuel disposition.

SRS Strategies

Billy Chambers

See slides

INEEL/INTEC

Dick Blaney

FW project will continue to be the NRC licensee and provider, which was the role of their parent company during contract completion with DOE. The construction window of the Foster Wheeler project is March 2004 through 2005.

Unsure of the impacts of NE at the INEEL, some things are up for negotiation between EM, NE, and NR, for example, what to do with CPP-666. These negotiations are underway.

ANL-W

Bob Pahl

MEDEC process (Melt, Drain, Evaporate, Carbonate)

- Prototype uses electricity as the heat source.
- Product should be low in cesium, so disposal as LLW should not be a problem.
- Life cycle costs are basically for the use of one of two applicable facilities at ANL-W and include \$80M in disposal costs (includes some cost for standard canisters and storage at a facility at INTEC).
- HLW streams from EMT would be stored at ANL-W until treated, then sent to INTEC for packaging and interim storage until shipments to the repository.
- If the Fermi fuel is not processed by EMT, it will stay in the fuel stream. The EIS included the FERMI fuel in the HLW stream, provided it is treated, but if treated by MEDEC, then the form is different and may not be part of the EIS. See Appendix A table in the EIS (#5 or 6). It said the process would go through EMT and the two forms will be considered HLW.

Quality Assurance

Bob Blyth

With the NSNFP transition to RW, NSNFP will maintain their QA program, but the sites focus will shift to RW-QA.

WASRD Update

Markus Popa

(No Formal Presentation)

EM has been rethinking the WASRD. They have been looking at alternative waste forms at EM's request and are reviewing the data from the contractors.

- No documents revisions will be revised in the near-term. CRD needs revision.
- No technical reviews for any document will be initiated at this time.
- There seems to be a disconnect between the WASRD and other EM plans. If we agree in principle on what waste forms to accept, the WASRD should be consistent with the EIS and the MOA. We need to get consistent.
- If the LA incorporates "everything" then the WASRD becomes mute. From the WASRD standpoint, the SNF is performance based. For example, the product from the MEDEC process is not in the WASRD. There is no move to close this loop. We need to resolve these issues. Our baselines are not integrated and we are holding up corporate products.
- The WASRD provided a place for the sites and LA to reference. It would be nice to be signed off. It has been used as a planning document.

WEDNESDAY APRIL 23, 2003

DOE EM Status and Issues

Patty Bubar

There is a lot of change going on and dealing with change is here to stay.

- Revisiting every EM contract with new focus, i.e., putting out new bids, renegotiating aggressive performance based contracts.
- Contract updates are close to completion on the closure sites:
 - Rocky Flats
 - Fernald-renegotiated contract
 - Mound – New contract 6-8 months ago
- EM is working on defining the scope to clean up the sites that had missions focused on winning the cold war. How do we look to the future and deal with continuing missions? This management model is not certain. How to we do this? To have a model that allows work to move on but not get hung up in the cleanup model.

- As part of 2005 budget, there will be some reengineering in the Department to support these new ideas.

1. CPTs

- There is confusion of roles and responsibilities with the scope of SNF and HLW.
- Transportation is up and running. It was delayed to make more progress with the Small Sites Team and the Nuclear Materials Team to identify issues associated with closing small sites and dealing with nuclear materials. The team's main focus is to ensure the sites that have more materials and waste have what it takes to move it off site, such as packaging, documentation, etc.
- NEPA will be the last team to be put in place.

2. Nuclear Materials (S&S)

- EM wants to focus on consolidation of nuclear material to reduce the monitoring costs.
- Identify the material, and if EM owns it, it will be disposed. If there is a strategic use, then the program owns it. EM will not own the material; it will be transferred to WIPP, SRS (Pu), or ORNL (uranium). Working interface issues with NNSA. There are uncertainties with RW and NNSA. We are trying to identify and plan around these uncertainties. We want to be support with RW LA and understand their issues and schedule issues.

3. Transportation

- Since the war with Iraq, we have been tracking shipments. 180 to 190 unclassified shipments occur every day. We work all types of issues with the states. We are at a great level of maturity with transportation. This is good data to reassure the states. Reach agreement that we do know how to transport material and waste and we have the infrastructure to be able to respond to emergencies. In the past, EM programs have dealt with the states individually. States have treated this as an event with associated training activities and specific funding. This is unnecessary since there are shipments going through these states daily. We don't have to treat each fuel shipment as an event. We are working these issues. We are trying to educate and work with the states. SNF shipment is not an event; it should be treated as part of our core business. Emergency preparedness, training, and communication will be used to reassure them.
- We are challenging folks to really understand what we can do to implement rail to WIPP. We have been talking to states and the Western Governors. We need to solidify our planning. Had a meeting on April 8 to review what we know and what we need to have a "discussion document" to review with the states. The WGA will set up a meeting at the end of May. The WGA will want dedicated trains. Rail to WIPP is part of the Law. But this requires times. The five-year commitment is next June.
- In all these EM changes, there is programmatic risk. We are methodically working these issues. The biggest risk right now is litigation. The outcome is uncertain as well as what work can be done during litigation. The time it takes and the staff time is intensive and draining.

- There is a Department of Legacy Management. The functions of LTS will be carved out of EM and will be managed by a separate office with a separate budget. We are working to ensure that when we do our cleanup plans is clearly integrated into the cleanup decisions. Some concern that an artificial barrier will be created between cleanup and LTS.

EM HLW Corporate Project Team Status

Ken Picha

- The team narrowed down alternative waste forms to 15 types that were binned as follows: those that deal with RW, with closure, and with HLW. (Borosilicate glass, actinide glass with Pu, Calcine.) We are reviewing the matrix of project structure and critical decision milestones.
- The Undersecretary's direction was that the repository is prime real estate. Our recommendations do not result in new waste forms. We are attempting to reduce volumes in repository. Our results would create fewer waste forms, which are all in the LA baseline. Recommendations are more in the upstream side.

Planning for DOE SNF Data Needs for Disposal

Guy Martin

Guy Martin discussed the information and data that will be necessary to send SNF to the repository under the proposed licensing strategy. It is based on credit for the standardized canister and 10CFR63 criteria. There have not been changes in this area in the last few years.

Breakout Sessions; DOE and Contractor

Mark Arenaz & Philip Wheatley

The following tables summarize the issues raised at the two breakout sessions and the actions or resolutions identified. Some actions were given due dates, where others are for information only.

DOE/CONTRACTOR BREAKOUT SESSIONS SUMMARY

SUMMARY OF DOE ISSUES/RESOLUTION

#	Issue	Resolution/Action	Due Date
1	<p>Review of SNF scenarios</p> <ul style="list-style-type: none"> a. EM Optimized Storage Scenario (Storage only. Independent of repository operations) b. Potential Amendment in 2015 Scenario (Pu disposition at the MGR. Bare SNF shipments. No Na SNF treatment. Calcine <u>could</u> be disposed at MGR.) c. Performance Based LA Scenario (Description TBD) d. Baseline – Reference Acceptance (IAS Rev 5/01) Scenario 	<p>The input will be used for inclusion in the CPT report.</p> <p>Identify the impacts to the three sites from all the scenarios based on site's drivers and potential violations.</p>	In time for inclusion in SNF CPT's report.
2	What are the waste forms that are included in the EIS and in the LA analysis?	Paul Harrington will provide a more explicit description of how we define waste forms in the LA. Send to Lori Braase for incorporation into minutes.	5/23/03
3	How can the complex (SNF and HLW) be better informed about the work and recommendations of the CPTs?	Bob Blyth will send Christine Gelles suggestions to determine the method of communication.	5/16/03
4	What input/process is needed to revise the Integrated Acceptance Schedule (IAS)?	<p>This will continue to be an interactive process between RW and DOE.</p> <p>CPT will provide a formalized list of questions to RW as a basis for their reassessment.</p> <p>RW will reassess their criteria.</p>	
5	How specific will the LA be in identifying and describing which waste forms are included?	Covered by DOE Issue #2.	
6	How can we identify specific SNF work scope for each site/NSNFP so there is no redundancy?	The corporate WBS should resolve work scope issues.	

SUMMARY OF CONTRACTOR ISSUES/RESOLUTION

#	Issue	Resolution/Action	Due Date
1	<p>What are the critical decision points for SNF and HLW?</p> <ul style="list-style-type: none"> • When will they be made? • Who will make them? • LA and Baseline clarification. • What are the contingencies that should be included in FY-04 and FY-05 planning? 	<p>Andy Griffith (DOE) will carry this issue to DOE-HQ. For now, the sites have their baselines to use for planning.</p>	
2	<p>Compliance with regulatory and legal drivers. There are discrepancies with both site baselines and CPT scenarios within: RODs, State Agreements, RCRA, PMP, and Budget Baselines.</p>	<p>Christine Gelles will highlight these issues in her SNF CPT report.</p> <p>Christine Gelles/CPT team will revisit the 1996 Strategic Plan on sodium-bonded fuel and will also look at the NEPA commitment on Fermi treatment.</p>	
3	<p>Consistent guidance is needed for long-term management of the program.</p>	<p>Christine Gelles will elevate issues to HQ and will manage them as applicable in the CPT outcome.</p> <p>Andy Griffith will discuss issues with Patty Bubar for EM-20.</p> <p>Christine will send the cost and schedule scenarios for site input. Sites need to understand the basis and provide comments.</p> <p>Bob Blyth will provide the EIS Cost Report to Mark Arenaz and Christine Gelles.</p>	5/16/03
4	<p>Development of a Cost Model for EM Cost Recovery from other PSOs (such as NE, NMSA, Science).</p>	<p>Christine Gelles and Andy Griffith will identify a DOE-HQ champion to organize a team of POCs from each site to develop the methodology. (This fits into timing with reorganization at HQ.)</p>	